

CLAIMS

1 1. A logically partitioned data processing system,
2 comprising:
3 a plurality of logical partitions;
4 a plurality of operating systems, each assigned to
5 one of said plurality of logical partitions;
6 a plurality of memory locations, each location
7 assigned to one of said plurality of logical partitions;
8 a data transmission bus;
9 at least one terminal bridge connected to said data
10 transmission bus;
11 a plurality of input/output adapters, each
12 associated with a different one of said plurality of
13 logical partitions, said input/output adapters being
14 connected to said terminal bridge; and
15 means for preventing transmission of data between a
16 given one of said input/output adapters which is
17 associated with a first one of the plurality of logical
18 partitions, and memory locations unassigned to said first
19 one of said plurality of logical partitions.
20
21 2. The logically partitioned data processing system
22 of Claim 1 wherein said data transmission bus is a PCI
23 bus, and further comprising:
24 a PCI host bridge connected to said PCI bus; and
25 an input/output bus connected to said PCI host
26 bridge.
27
28 3. The logically partitioned data processing system
29 of Claim 1 wherein said terminal bridge has a plurality
30 of sets of range registers, each associated with a
31 respective one of said input/output adapters.

1 4. The logically partitioned data processing system
2 of Claim 3 further comprising an arbiter which selects
3 one of said input/output adapters to use said data
4 transmission bus, wherein said transmission preventing
5 means assigns one of said sets of range registers based
6 on a grant signal from said arbiter.

1 5. The logically partitioned data processing system
2 of Claim 3 wherein said sets of range registers contain
3 direct memory access addresses which limit operations
4 that may be placed onto said data transmission bus by
5 said input/output adapters.

1 6. The logically partitioned data processing system
2 of Claim 3 wherein said sets of range registers are
3 programmable.

1 7. A method of preventing an operating system image
2 within a logically partitioned data processing system
3 from fetching or corrupting data from a memory location
4 allocated to another operating system image within the
5 data processing system, the method comprising the steps
6 of:

7 receiving a request from the operating system image
8 to access a given one of a plurality of input/output
9 adapters each associated with a different one of a
10 plurality of logical partitions of the data processing
11 system, wherein the input/output adapters are connected
12 to a single terminal bridge; and

13 accessing the given input/output adapter using
14 memory mapped to the operating system image.

1 8. The method of Claim 7 wherein said accessing step
2 includes the steps of:

3 transmitting the request to a PCI host bridge using
4 an input/output bus; and

5 conveying the request from the PCI host bridge to
6 the terminal bridge using a PCI bus.

1 9. The method of Claim 7 wherein said accessing step
2 utilizes one of a plurality of sets of range registers of
3 the terminal bridge, each associated with a respective
4 one of the input/output adapters.

1 10. The method of Claim 9 wherein said accessing
2 step further utilizes an arbiter which selects one of the
3 input/output adapters, to assign one of the sets of range
4 registers based on a grant signal from the arbiter.

1 11. The method of Claim 9 further comprising the
2 step of associating each of the sets of range registers

3 with direct memory access addresses which limit access by
4 the input/output adapters.

1 12. The method of Claim 9 further comprising the
2 step of programmably loading the sets of range registers.

1 13. A computer program product for use in a data
2 processing system for preventing an operating system
3 image within a logically partitioned data processing
4 system from fetching or corrupting data from a memory
5 location allocated to another operating system image
6 within the data processing system, the computer program
7 product comprising:

8 a storage medium; and
9 program instructions stored on said storage medium
10 for receiving a request from the operating system image
11 to access a given one of a plurality of input/output
12 adapters each associated with a different one of a
13 plurality of logical partitions of the data processing
14 system, wherein the input/output adapters are connected
15 to a single terminal bridge, and for accessing the given
16 input/output adapter using memory mapped to the operating
17 system image.

1 14. The computer program product of Claim 13 wherein
2 the request comprises an input/output adapter identity, a
3 memory address range to be mapped, and a direct memory
4 access range, and said program instructions further
5 determine that the identity of the input/output adapter,
6 the memory address range, and the direct memory access
7 range are allocated to the operating system image.

1 15. The computer program product of Claim 13 wherein
2 said program instructions access the input/output adapter
3 utilizing one of a plurality of sets of range registers
4 of the terminal bridge, each associated with a respective
5 one of the input/output adapters.

1 16. The computer program product of Claim 15 wherein
2 said program instructions ~~do~~ further load the sets of range
3 registers.